

U. S. PTO Customer No. 25280

Case #5602

REMARKS

35 USC Section 103 Rejections:

4. Claims 1 – 5, 8 – 27, 32 and 33 were rejected under 35 USC 103(a) as being unpatentable over Otto (USPN 4,316,928) in view of Nun et al. (US 2003/0013795 A1).

Examiner's Arguments

The Examiner states that Otto teaches a method of making a fiber containing substrate, including steps of providing a fiber containing substrate (10) having a first surface and a second surface (Figure 1), and face finishing at least the first surface of the substrate. The face finishing is a mechanical treatment of the substrate, accomplished by exposing at least the first surface of the substrate to one or more abrasive surfaces (11, 11a). The process of Otto provides a substantially uniform modification to the surface of the fabric (Abstract). A uniform modification of the surface of the fabric results in greater than 20% of said surface being treated. A wide variety of fabrics may benefit from being processed according to Otto including woven, knitted, and nonwoven fabrics (col. 6, lines 25-30). The face finishing forms integral microscopic surface structures, as in claim 1; see col. 3, lines 19-59; col. 6, lines 53-54 (disclosing that the finish is not apparent to the naked eye) and Figures 9 and 17, showing 350x magnification of the surface. Furthermore, the Examiner asserts that the substrate of Otto does have integral microscopic surface structures including projections (see protrusions disclosed in col. 3, lines 22-25) and a plurality of unbroken fibers (see figures of Otto showing treated fabric of Otto), and the method of abrading disclosed by Otto would clearly result in the fabric having a roughened surface. The Examiner states that Otto fails to teach the use of a repellent component or the addition of small particles.

The Examiner relies upon Nun et al. for a teaching of a self-regenerating, self-cleaning hydrophobic surface formed when particles are secured on a carrier that is itself a mixture of particles and binder (Abstract). Elevations and depressions are formed by particles being secured to the surface by the carrier [0030]. The preferred size of the particles range from 20nm to 100 microns [0031]. The distance between adjacent particles on the surface ranges from 0 to 10 particle diameters [0032]. The particulate may be silica including fumed silica [0035]. The binding carrier that coats the surface of the article may be cross-linked [0040] and may comprise acrylates or urethane acrylates. The Examiner further states that it can be advantageous for the binding polymer to comprise compounds

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having fluorine-containing groups such as perfluorinated acrylic esters. The particles may be applied to fabrics for use as umbrellas [0065].

Thus, the Examiner asserts that since Otto and Nun et al. are from the same field of endeavor (i.e. treated fabrics), the purpose disclosed by Nun et al. would have been recognized in the pertinent art of Otto. As such, the Examiner states that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Otto with the coating motivated by creating a self-cleaning, hydrophobic fabric as disclosed by Nun et al.

Although Otto and Nun et al. do not explicitly teach the claimed Roughness Factor and integral microscopic structure size, the Examiner believes it is reasonable to presume that said property and structure is inherent to the combined invention. Support for said presumption is found in the use of like materials (mechanically surface-finished textile that requires 350x magnification to view the protrusions). The burden is upon Applicant to prove otherwise.

With regard to claim 27, the Examiner contends that Otto provides a broad teaching as to the fabrics that may be surface-finished. This teaching is interpreted by the Examiner to include all conventional fabrics including a laid scrim.

Applicants' Arguments

In order to establish a *prima facie* case of obviousness, MPEP 2143 states that (a) there must be a motivation or suggestion to combine the references, (b) there must be a reasonable expectation of success if the combination is made, and (c) all the claim limitations must be considered. Applicants respectfully submit that (a) – (c) have not been met; and therefore, the instant claims are not obvious in light of the prior art.

Applicants respectfully disagree with the Examiner's assertion that Otto and Nun et al. are from the same field of endeavor (i.e. treated fabrics) and therefore, the purpose disclosed by Nun et al. would have been recognized in the pertinent art of Otto. Accordingly, Applicants disagree with the Examiner's reasoning in that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Otto with the coating motivated by creating a self-cleaning, hydrophobic fabric as disclosed by Nun et al.

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Applicants respectfully submit that Nun et al. fail to teach treating fiber-containing substrates. The only mention of something remotely close to such substrates is the disclosure of treating umbrellas with the coating of Nun et al. Applicants respectfully assert that such disclosure does not constitute a teaching or suggestion of treating fiber-containing substrates as taught and claimed by Applicants.

Additionally, Applicants respectfully submit that there is no motivation, or apparent reason, to combine Otto with Nun. Otto does not teach or suggest the need for any further fabric treatments after the mechanical face-finishing of the fabric. Nun, which fails to teach the treatment of fiber-containing substrates, also fails to teach or suggest mechanical face-finishing treatments for the substrate. As such, what motivation is provided to one having ordinary skill in the art at the time of the invention to combine the particle-containing coating for non-fiber containing substrates as taught by Nun with the mechanical face-finishing treatments for fabrics taught by Otto, when Otto fails to teach the need for any additional fabric treatments? Applicants respectfully submit that there is none.

Furthermore, Applicants respectfully submit that, even if the combination were made, there is no reasonable expectation of success that modifying the substrates taught by Otto with the chemical treatment taught by Nun would result in Applicants' claimed invention. Nun teaches applying the chemical treatment to smooth, rigid and non-rigid surfaces [0064-0065]. The rigid substrates taught by Nun cannot even be treated by the processes of Otto because they cannot be fed through the mechanical apparatus. The flexible substrates, if treated by the processes of Otto, would result in the undesirable removal of the chemical treatment.

Finally, Applicants respectfully submit that the combination of references fails to consider all of the claim limitations. For example, where is the teaching that "integral microscopic surface structures have projections substantially normal to the plane of said fiber-containing substrate?" Applicants respectfully submit that there is none. Otto teaches lamellae protrusions on fibers, but fails to teach the claim limitation recited by Applicants. Nun et al. fail to teach fibers at all.

Accordingly, Applicants respectfully submit that the combination of Otto in view of Nun et al. fails to provide a *prima facie* case of obviousness, since (a) there is no motivation or suggestion to combine the references, (b) there is no reasonable expectation of success, even if the combination is made, and (c) all claim limitations have not been considered, as required by MPEP 2143. Reconsideration and withdrawal of this rejection is earnestly and respectfully requested.

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5. Claims 40 – 45 were rejected under 35 USC 103(a) as being unpatentable over Otto (USPN 4,316,928) in view of Nun et al. (US 2003/0013795 A1) as applied to claim 32 and further in view of Morrison et al. (USPN 4,343,853).

Examiner's Arguments

The Examiner asserts that the disclosures of Otto and Nun et al. fail to teach the use of at least one additional layer of material. Thus, the Examiner relies upon the teachings of Morrison for a disclosure of a "two-face" fabric comprising a visible face fabric and a backing fabric (col. 2, lines 10-68). The Examiner states that the primary objective of the fabric is to create an article that is anti-microbial even though both fabric faces have not been treated (col. 3, lines 8-17).

Thus, the Examiner submits that since Otto and Morrison are from the same field of endeavor (i.e. treated fabrics), the purpose disclosed by Morrison would have been recognized in the pertinent art of Otto. As such, the Examiner states that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the combined invention of Otto and Nun et al. with the second fabric layer of Morrison motivated by imparting anti-microbial protection to two fabric faces while maintaining the advantages of naturally occurring, untreated fibers in one of the fabrics (Abstract, Morrison).

Applicants' Arguments

Applicants respectfully rely on the discussion presented above with regard to the deficiencies of Otto in view of Nun et al. and respectfully assert that the additional teachings provided by Morrison fail to provide for these deficiencies. Morrison teaches a multi-layered fabric having an antimicrobial agent contained therein (Abstract; col. 2, lines 17). Morrison does not teach a fiber-containing substrate having integral microscopic surface structures present thereon, wherein said integral microscopic surface structures have projections substantially normal to the plane of the substrate, wherein the fibers are substantially unbroken and wherein the substrate further contains a repellent component, as recited (in part) by instant claim 1.

Accordingly, Applicants respectfully submit that the combination of Otto in view of Nun et al. and further in view of Morrison fails to provide a *prima facie* case of obviousness, since (a) there is no

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motivation or suggestion to combine the references, (b) there is no reasonable expectation of success, even if the combination is made, and (c) all claim limitations have not been considered, as required by MPEP 2143.

Conclusion:

For the reasons set forth above, it is respectfully submitted that all claims now stand in condition for allowance.

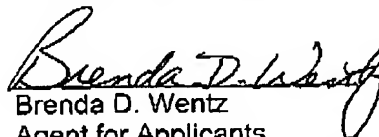
Should any issues remain after consideration of these Remarks, the Examiner is invited and encouraged to telephone the undersigned in the hope that any such issue may be promptly and satisfactorily resolved.

In the event that there are additional fees associated with the submission of these papers, authorization is hereby provided to withdraw such fees from Deposit Account No. 04-0500.

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Respectfully requested,


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